Slaapklachten in de periode voorafgaande aan het hartinfarct

SUMMARY

Cross-sectional, retrospective, and prospective studies have shown that sleep problems are risk indicators for coronary artery disease (CAD). Those sleep problems are: problems with initiating and maintaining sleep, exhaustion on final awakening and getting up, sleep duration that deviates from the usual 7 to 8 hrs. of sleep, and heavy snoring.

In this case-control study, sleep problems were primarily studied as a major component of vital exhaustion. It has been shown that vital exhaustion is an important risk indicator for myocardial infarction (MI) in adult males and females. Vital exhaustion is primarily characterized by complaints about unusual fatigue and loss of energy, increased irritability, and a feeling of being defeated. Being tired on awakening also constitutes a major complaint in this respect. Another hallmark of vital exhaustion is loss of libido. Other depressive feelings may be present as well but are not necessarily reported in order to be assessed as being vitally exhausted. Finally, guilt feelings and loss of self-esteem appear to be absent.

The main research question of this case-control study was: Do sleep problems associate with MI ? In all, 79 MI-patients and 132 hospital controls from the same hospitals were studied. The controls were hospitalized at about the same time as the cases were. All cases and controls were age-matched males who were between 35 and 65 years of age. In order to control for the influence of pain and physical discomfort other than chest pain, those males who had been hospitalized because of chronic malignent pain disorders were excluded. It occurred during the investigation that pain and physical discomfort were, however, still reported more often by controls and, thus, constituted a confounder. Therefore, in the final analyses, pain and physical discomfort other than chest pain were controlled for.

To answer the research question, various questionnaires were employed, namely: a) the Jenkins sleep questionnaire; b) the Sleep-Wake Experience List; and c) a list containing a number of other sleep questions.

In order to control for confounders, other variables were measured as well, namely: age, smoking, angina pectoris (AP), Type A behavior, and vital exhaustion. Moreover, questions about coffee and alcohol consumption, pain and physical discomfort other than chest pain, and medicine use were included. These variables were measured by means of the following questionnaires: d) the Rose Questionnaire for AP; e) the Maastricht Questionnaire about vital

exhaustion (24 instead of 21 items); and f) a life styles questionnaire about smoking, coffee and alcohol consumption, and medicine use. Type A behavior was assessed by means of the Structured Interview.

The reasons why individuals may become vitally exhausted are still not fully understood. Perhaps the awareness of MI-patients' misinterpretations of their coping behavior ("need for control") can lead to feelings of vital exhaustion and of depression. Both constructs, vital exhaustion and need for control, will be investigated in this study.

It is well known that Type A behavior is characterized by the need to continuously control personal environments as much as possible. In the last few months prior to MI, many (Type A) MI-patients have reported a "fear of losing control". During this period, they overestimate environmental demands and underestimate their personal coping capabilities (i.e., "immersion").

Like in many other studies, Type A behavior occurred significantly more often in MI-patients than in controls. Moreover, it was associated with a shorter sleep duration.

Most of the analyses from the present study show that MI-patients complained about poor sleep at night and malfunctioning during the day in the period before MI, compared to hospital controls. The differences between both groups were rather small, however, and were mostly marginally significant. Problems with staying asleep, in particular having trouble going back to sleep again after waking up during the night, and feeling tired during the day significantly increased the risk of MI.

As in previous case-control studies, vital exhaustion as assessed by means of the Maastricht Questionnaire (MQ) was a strong risk indicator for MI. It was also observed that vital exhaustion was a stronger risk indicator than Type A behavior, something which had been found previously in our research group. Moreover, the risk associated with having become an exhausted Type A, was larger than with either vital exhaustion or Type A behavior.

Item-analysis of the MQ showed that the three items about increased irritability discriminated best (i.e., the significantly elevated odds ratios ranged from 4.2 to 3.2). It may be thought that MI- patients have become hyperaroused as a result of a recent event; therefore, they may have trouble falling asleep again after awakening during the night. It may be speculated that in those patients in the period prior to their MIs, more physiological and neurohormonal activation occurred late in the evening or early morning than in same-aged healthy subjects. In particular, this activation may take place in the period when most REM-sleep occurs, that is, between 4 and 7 o'clock in the morning. In this episode, most MIs become manifest.

Recent research has found that the sleep of exhausted healthy males is characterized by a decrease in delta sleep, compared to non-exhausted

subjects. Therefore, the revitalizing capacity of sleep has become impaired in exhausted subjects. In the present case-control study this was represented by the findings that MI-patients reported being tired during the day and had trouble staying asleep. Such complaints appear not enough reason, however, to seek help from a physician. They have been present for a longer period of time, but appeared to be rather infrequent. Thus, in combination with chest pain of recent onset, these complaints may be an important indicator of increased risk of near-future MI.

In a meta-analysis by Booth-Kewley & Friedman (1987) it appeared that depression was a stronger risk indicator for MI than Type A behavior. Since this publication, a number of studies have been published in which the associations between sleep problems, depression, and MI was studied. Insomnia constitutes part of depression and, therefore, it may be associated with MI. The patients (both MI and hospital controls) from the present study who reported trouble staying asleep, complained more often about feeling sad and mournful than those who did not report sleep problems. Those results suggest that more research is needed about the associations between sleep problems and vital exhaustion and depression.

Finally, in the present study, MI-cases were more often "immersed" than hospital controls. "Immersion" goes together with trouble staying asleep. As reported above, future patients complain about trouble falling asleep again after waking up during the night in the period before MI. As a result of poor sleep, their day time functioning becomes disturbed, which is expressed by feeling tired and by increased irritability. Future research, in particular longitudinal studies, may answer the question how chronic irritability may inhibit one's staying asleep and which underlying mechanisms may increase the risk of MI.